

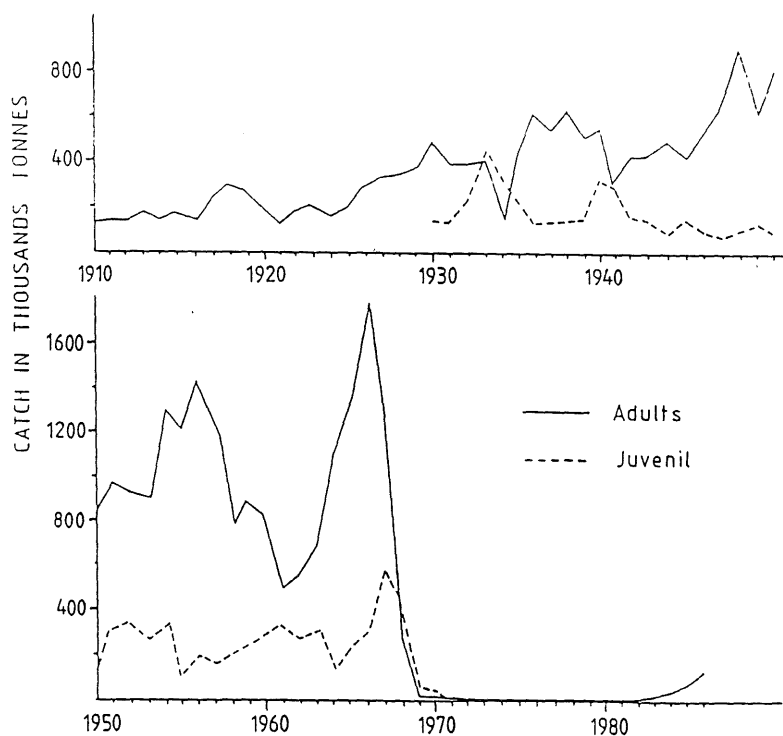
EXPLOTATION AND STATE OF STOCK

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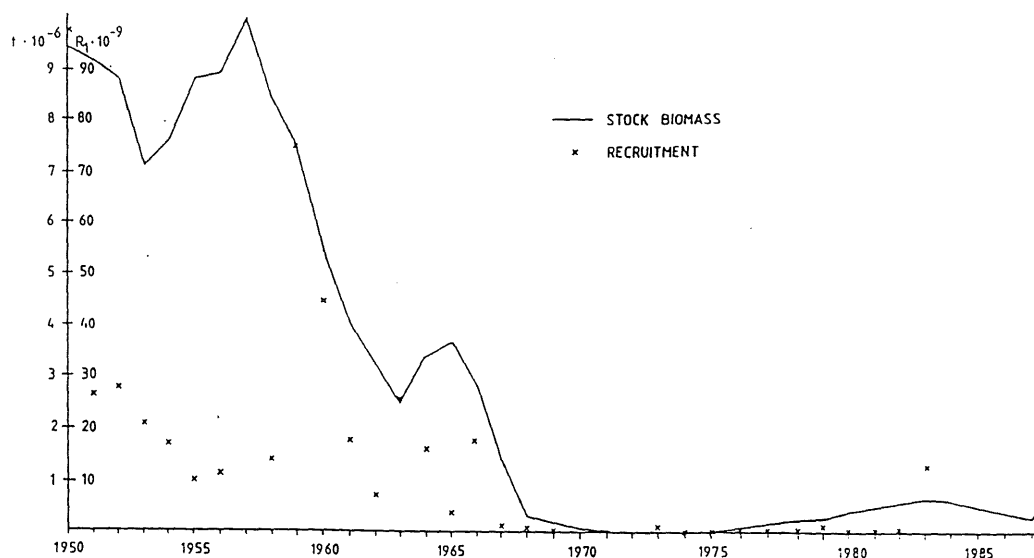
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Before the 50's, most of the herring fishery was conducted in Norwegian coastal waters. The adult herring were fished under the spawning migration in winter and spring, whereas the juveniles were caught as fat herring (aged 3-5) on the coast during autumn and as small herring in the fjords throughout the year. The exploitation of adult herring in the Norwegian Sea increased gradually in the 50's, and after the introduction of the power block herring were intensively fished in all areas and at all ages. The stock collapsed in 1969 and it is still considered as an overexploited stock as far as recruitment is concerned.



Catch statistics. Herring catch statistics are available back to the previous century, and have been split into juvenile and adult catches since 1930. The total catch rose to above 1 million tonnes in the 1950's, but a pronounced reduction in the catch of adults occurred at the end of this period. This was due to low recruitment from the year-classes 1951-58. Two abundant herring year-classes were hatched in 1959 and 1960, and when these were exposed to the open sea fisheries, the fishing effort had increased dramatically. These events resulted in the largest fish slaughter in history. A record catch of almost 2 million tonnes was fished in 1966, and the last shoals of herring spawners were killed on the spawning grounds in the winter of 1969. The catches in later years have been limited by catch quota regulation.



State of stock. Spawning stock biomass by year is backcalculated to 1950 on the basis of the catch by year-class, and year-class abundance is added backwards to one year old (VPA). In the mid-50's, the stock biomass was as much as 10 million tonnes, but it decreased to some 2.5 million tonnes in the early 60's. After a temporary increase in stock size in 1964-65, the stock declined rapidly in subsequent years and collapsed in 1969. Some herring of the 1969 year-class did survive however, and they spawned for the first time in 1973. In subsequent years the stock biomass increased slowly to about 500,000 tonnes in 1983. In the period 1983-85 strong year-classes were recruited and the 1983 year-class spawned for the first time in 1988.

The strength of herring year-classes varies and good recruitment is associated with high inflows of Atlantic water to the Barents Sea. However, the recruitment of cod, which are the main predators in the area, is governed by the same climatic conditions, and the recruitment success of herring depends to a great extent on the predator-prey relationship with cod.